

# Russia's Nonstrategic Nuclear Weapons and Its Views of Limited Nuclear War

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**Russia's nonstrategic nuclear weapons are designed to achieve deterrence and military success against a technologically superior opponent. They are unlikely to be deployed in Ukraine.**

Since the collapse of the Soviet Union, Russia's nonstrategic nuclear arsenal has come to play an increasingly important role in its defensive plans. The definition of nonstrategic nuclear weapons in Russian parlance covers weapons with a range of less than 5,500 km. Tactical nuclear weapons (TNW) are a sub-category of nonstrategic nuclear weapons that are limited in range, typically to 500 km.

Most such weapons are in the kiloton (kt) range. For example, the nuclear capable SSC-8 carries a 10kt warhead. Notably, some Russian missiles which fall into the category of strategic weapons, such as the Layner submarine-launched ballistic missile, are also capable of carrying low-yield warheads suggesting substrategic missions. Though it has been suggested that unlike the Soviet Union, Russia is willing to resort to nuclear first use and has lower nuclear thresholds, this is not quite right. The Soviets incorporated the early use of battlefield nuclear weapons into their planning for a war in Europe. Rather, Russian thinking differs from its Soviet predecessor in that it considers the possibility of limited nuclear use as part of efforts to inflict



‘unacceptable damage’ upon an opponent within the context of a coercive strategy. This is dissimilar to the Soviets who, though they held out the possibility of avoiding strategic exchanges between the Soviet Union and the US, assumed that even tactical nuclear use in Europe would assume catastrophic proportions. For Russia, nonstrategic nuclear weapons are a controllable part of a framework for achieving both battlefield results and war termination.

## Schlessinger Was Right After All

In 2014, Russia made changes to its military doctrine stating:

The Russian Federation reserves the right to use nuclear weapons in response to the use of nuclear and other types of weapons of mass destruction against it and/or its allies, and also in the event of aggression against the Russian Federation involving the use of conventional weapons when the very existence of the state is under threat.

This was a departure from Russia’s 2000 doctrine which stated that nuclear weapons could be used ‘in situations critical for the national security of the Russian Federation’. The raising of the nuclear threshold was further underscored in Russia’s 2020 publication on ‘**The Basic Principles of the State Policy of the Russian Federation on Nuclear Deterrence**’, which specified that Russia would resort to nuclear weapons if it or its allies were attacked with WMD, if it detected a launch of ballistic missiles against its own or allied territory, if its nuclear C2 structures were attacked, or if the state’s very existence was threatened by the use of conventional weapons by an opponent.

However, analysts have questioned two points. The first is whether Russia’s definition of WMD includes capabilities that figures like Sergei Shoigu have described as approaching WMD levels of destruction (which has included



precision strike capabilities and, more recently, cyber attacks on a certain scale).

The second bone of contention has been the **wording** of the fourth clause of the 2020 policy document. The state and society are not conflated meaning that a threat to the state's control over Russia **potentially** meets the nuclear criterion even if Russian society is not under catastrophic attack. There is also a semantic question; does the clause refer to the use of conventional weapons on a scale that could destroy the Russian state's effective functionality (the massed NATO 'aerospace attack' on which the Russians have **long fixated**) or does it refer to the use of conventional weapons at any scale in a political context where Russian leaders believe the existence of the state is imperilled?

This ambiguity may well be by design given that other publications like Russia's 2017 **naval doctrine** refer to the role of nuclear weapons as a tool to be used at all phases of conflict. This does not necessarily mean that nuclear strikes will occur at every stage of a conflict but rather that ambiguity regarding possible use can create the conditions for conventional escalation and that the calibrated use of nonstrategic nuclear weapons can end a losing conflict on acceptable terms. That said, it is likely that Russia would only use nuclear weapons in extremis should, for example, its forces face a decisive defeat at the hands of NATO or its control over what it deems its own territory be jeopardised. Notably, this can include freshly seized territory that has been de jure incorporated into Russia. For example, we might consider the nuclear threats issued by President Vladimir Putin over the seizure of Crimea, which **prompted** concerns that Russia would resort to nuclear weapons to dissuade Western involvement.

However, it appears to be a matter of policy that nuclear weapons are reserved for what Russia would **term** regional or global wars. Regional wars are defined as an attack by a state or coalition of states seeking a major political goal. Global wars would be fought between Russia and a coalition of states seeking to end Russia's sovereignty. The smallest category of wars is a



local war, which is fought with one or several smaller states for limited political aims. There are **no scenarios** in which TNW could or would be used in a local conflict, as they are ‘for general warfighting as a last-ditch effort in cases where the military is losing a war and the state is under threat’. They are thus unlikely to be used in Ukraine, except in the unlikely scenario that Russian forces are routed to the point that Ukraine can retake Crimea.

The fact that Russia is willing to contemplate nuclear first use is not Russia’s primary departure from Soviet practice. The Soviets never had a meaningful ‘no first use’ policy and the current Russian threshold for nuclear use is still probably quite high. What is genuinely new about Russian doctrine is that it **includes options** for limited and flexible nuclear use. While the Soviet Union expected to begin an existential conflict with the large-scale use of TNW and to escalate to full-scale strategic use should its homeland be attacked, its leaders broadly dismissed the notion of limited nuclear war. Soviet thinkers were willing to conceive of a geographically limited but militarily unlimited nuclear war encompassing Europe but not the US or Soviet homelands but scoffed at the idea that nuclear weapons could be used in small numbers for tasks like signalling resolve.

Figures such as General M A Milshtein and Major General Simonain wrote of the Schlessinger doctrine – which aimed to give the US president politically usable limited nuclear options – as being at best unrealistic. At worst, it was considered a cover for preparations to mount a full-scale pre-emptive attack, the only type of nuclear war the Soviets could contemplate. By contrast, **contemporary** Russian nuclear planning involves selective strikes against targets in adversary homelands, coupled with the use of TNW against fielded forces, as a means of terminating a war on favourable terms. Ironically, then, Russia’s thinking on nuclear warfare has evolved into something not dissimilar to Schlessinger’s.



# The Balance of Terror


Several factors have intertwined to make Russia's doctrine at least partially credible. The first is that certain Russian capabilities can target specific non-nuclear members of NATO but not others. It is notable, for example, that Russian nuclear sabre rattling since at least the *Zapad 2009* exercise has involved simulated Iskander short-range ballistic missile strikes on Warsaw. The Iskander can strike Poland or Germany from Kaliningrad or Belarus but cannot hit the UK or France, much less the US. This is useful for the conduct of limited strikes as it solves the **discrimination problem**, ensuring that a nuclear-armed member of NATO does not misperceive a launch as an attack on its own homeland. If an early warning system such as the US **space-based infrared satellite system** detects an infrared signature consistent with a short-range ballistic missile launch, there is less likelihood of a misunderstanding. The use of nuclear-capable cruise missiles is also useful in this regard as smaller missiles that are limited in range and yield can be distinguished from strategic nuclear weapons.

The second factor is the increased accuracy of Russian missiles. For example, the Iskander has an accuracy error radius of 10 m. Historically, due to missile inaccuracy, destroying hardened targets required the use of high-yield warheads at altitudes that caused significant fallout. This meant that one could not selectively target military facilities because the fallout would likely kill many civilians and trigger full-scale exchanges. More accurate missiles can generate sufficient pressure per square inch to destroy military targets such as hardened command posts or hardened air shelters with low-yield warheads **even if detonated** at relatively high altitudes. This in turn lowers the fallout from a nuclear strike to **negligible levels** and raises the possibility of 'clean' nuclear use against military rather than civilian assets. In this context, limited nuclear use as a means of coercion may appear less outlandish.



A nuclear weapon imparts four effects upon its target area: thermal radiation; blast; nuclear radiation; and a nuclear electromagnetic pulse. Detonating a nuclear weapon at higher altitudes results in greater effects over a wide area, but lower fallout from radioactive debris. A surface detonation will lead to greater fallout as dust and debris are sucked into the blast where they combine with radioactive material before returning to the ground. The altitude at which a nuclear weapon is detonated is also inversely correlated with the pressure per square inch that it creates near its detonation point. For example, an air burst 100 kt weapon would create a fireball with a radius of around 1,110 m – a person 8 km from the blast would receive **negligible injuries**. If the same yield weapon was detonated on the ground its radius would be about 6.5 km, but it may spread nuclear particles much further leading to further complications. Both the blast wave and overpressure will cause damage to people, buildings and vehicles in much the same way as conventional explosives, although with much greater force. The thermal radiation created by the fireball can reach temperatures of 8,000 °C and last for seconds, as opposed to milliseconds. The most **lasting and unpredictable damage** done by a nuclear device is a function of its fallout not the blast.

## The Military Value of Tactical Nuclear Weapons

The value of nuclear weapons as a battlefield asset has been questioned, with some experts concluding that a key lesson of the Cold War was their lack of utility. For example, US Army **studies** concluded that a 1 kt warhead would need to detonate within 90 m of a tank to inflict serious damage. This conclusion has been reinforced by **academic studies** on the potential use of TNW in the context of an Indo-Pakistani war, which suggest a 5 kt Pakistani weapon used against an Indian armoured regiment could knock out 13 tanks. Some have argued that optimising detonation altitudes to maximise prompt radiation rather than overpressure yields better results, though this is **disputed** and would increase fallout levels and civilian casualties – thus ating the logic of limited use.



Other analysts, including some Soviet ones, concluded that tanks provide effective **protection** against light and penetrating radiation. However, there are certain potential theatres where multiple low-yield weapons could be used with minimal civilian casualties and maximum military effect.

Using NUKEMAP, an online tool that has been used in peer-reviewed **research**, we estimate that the airburst detonation of single 10 kt weapons in both the Suwalki gap and parts of the north of Norway yields civilian casualties in the hundreds. Both areas are narrow – necessitating the concentration of NATO forces and thus maximising nuclear weapons effects.

Second, TNW have much wider areas of effect against artillery, infantry and soft-skinned logistical vehicles, which is why **targeting** these assets in order to isolate the tanks of the Soviet first echelon was their role in US doctrine.

Finally, longer-range nonstrategic nuclear weapons have utility against airbases and command posts across Europe which, as mentioned, can now be contemplated without the escalatory effect of large-scale civilian casualties.

## **The Future Russian Armed Forces: A More Nuclear-Centric Force?**

This Commentary broadly outlines the current Russian perspective of tactical nuclear weapons and how it has been formed. However, it is difficult to assess how the Ukraine war will shape the Russian armed forces. One possibility is that if Russia cannot fully reconstitute the conventional military power that it is expending in Ukraine, it will become increasingly reliant on its nonstrategic nuclear arsenal and could lower its nuclear thresholds to that of its doctrine in 2000.

This has implications for NATO deterrence and force design. At the level of deterrence, it may be relevant to consider the integration of nuclear  
deterrence with warfighting, rather than maintaining that nuclear use



fundamentally changes the nature of a conflict. Especially if an opponent feels that military ends can be achieved with nuclear means. If this eventuality were to occur, it could reshape many current force design assumptions.

A nuclear-centric Russian force structure would also have significant implications for European force design. To use one example, the debate regarding the growing utility of light infantry and artillery against tanks is effectively inverted in a nuclear context where tanks are one of the few survivable tools on a nuclear battlefield. If Russia's armed forces devolve back into a nuclear-centric force, this will significantly reshape many present assumptions.

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